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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,527	10/11/2001	Geoffrey W. Peters	INTL-0622-US (P11953)	9381

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EXAMINER

TILLERY, RASHAWN N

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,527

Applicant(s)

PETERS, GEOFFREY W.

Examiner

Rashawn N Tillery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 7-12, 14, 17-22, 24 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Bender et al (US5657402).

Regarding claims 1, 11 and 21, Bender discloses a method comprising:
focusing an imaging device over at least two different focal lengths; and
forming an in-focus image including objects at two different focal lengths (Bender teaches capturing a sequence of images from a short focal length to a long focal length and using the sequence of images to form a composite image; see col. 8, lines 13-62).

Regarding claims 2, 12 and 22, Bender discloses automatically focusing an imaging device to at least two different focal lengths (see claim 1 above).

Regarding claims 4, 14 and 24, Bender discloses evaluating the sharpness of portions of images taken at two different focal lengths (Bender teaches applying a weighting function to all warped frames of the sequence of images; see col. 17, lines 42-58).

Regarding claims 7, 17 and 27, Bender discloses comparing sharpness values of two captured frames and weighting pixels having sharpness values indicating better

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focus more than pixels that have sharpness values indicating poorer focus (Bender teaches weighting frames of a higher resolution more heavily than frames of a lower resolution and thus inherently compares the frames respective sharpness values; see col. 17, lines 42-58).

Regarding claims 8, 18 and 28, Bender discloses generating a composite image containing image portions taken over at least two different focal lengths by comparing the quality of focus of two different image portions and weighting the image portion with better focus (Bender teaches weighting frames of a higher resolution more heavily than frames of a lower resolution and thus inherently compares the frames respective sharpness values; see col. 17, lines 42-58).

Regarding claims 9, 19 and 29, Bender discloses transforming a subsequent frame to match the characteristics of a previous frame taken at a different focal length (Bender teaches warping subsequent frames to match the first; see col. 8, line 51 to col. 9, line 52).

Regarding claims 10, 20 and 30, Bender discloses transforming the size of one of the two frames taken at different focal lengths (Bender teaches mapping smaller portions of a scene into a larger data space; see col. 8, line 51 to col. 9, line 52).

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4-12, 14-22 and 24-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Yokota et al (US6118484).

Regarding claims 1, 11 and 21, Yokota discloses a method comprising:
focusing an imaging device over at least two different focal lengths; and
forming an in-focus image including objects at two different focal lengths (Yokota teaches capturing images of objects located at different distances by driving the focus lens group and combining the image data to form a composite image; see col. 6, line 57 to col. 8, line 13).

Regarding claims 2, 12 and 22, Yokota discloses automatically focusing an imaging device to at least two different focal lengths (see claim 1 above).

Regarding claims 4, 14 and 24, Yokota discloses evaluating the sharpness of portions of images taken at two different focal lengths (Yokota teaches detecting the sharpness of the edges of the objects; see col. 4, lines 53-62).

Regarding claims 5, 15 and 25, Yokota discloses evaluating sharpness on a pixel-by-pixel basis (inherent feature).

Regarding claims 6, 16 and 26, Yokota discloses evaluating sharpness on a pixel-by-pixel basis and storing sharpness information in an alpha channel associated with each pixel (Yokota inherently teaches evaluating sharpness on a pixel-by-pixel basis since objects of an image are individually focused and stored for subsequent synthesizing; Yokota also teaches detecting the unsharpness of the edge portion of the object and thus inherently stores sharpness information associated with each pixel of an

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object; the examiner notes that whatever form Yokota stores the sharpness information in can be an "alpha channel" since it is merely a name describing a storage means).

Regarding claims 7, 17 and 27, Yokota discloses comparing sharpness values of two captured frames and weighting pixels having sharpness values indicating better focus more than pixels that have sharpness values indicating poorer focus (inherent feature).

Regarding claims 8, 18 and 28, Yokota discloses generating a composite image containing image portions taken over at least two different focal lengths by comparing the quality of focus of two different image portions and weighting the image portion with better focus (Yokota teaches capturing images of objects located at different distances by driving the focus lens group and combining the image data to form a composite image; see col. 6, line 57 to col. 8, line 13).

Regarding claims 9, 19 and 29, Yokota discloses transforming a subsequent frame to match the characteristics of a previous frame taken at a different focal length (Yokota teaches an affine transformation; see col. 16, lines 44-52).

Regarding claims 10, 20 and 30, Yokota discloses transforming the size of one of the two frames taken at different focal lengths (see col. 16, lines 44-52).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5, 13, 15, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender et al.

Regarding claims 3, 13 and 23, Bender teaches capturing a sequence of images from a short focal length to a long focal length and using the sequence of images to form a composite image. Bender does not expressly disclose enabling the user to manually adjust the focal lengths. However, Official Notice is taken that manual operation of camera functions are well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bender's teachings by enabling the user to manually adjust the focal lengths as an obvious variation to automatic control.

Regarding claims 5, 15 and 25, Bender teaches capturing a sequence of images from a short focal length to a long focal length and using the sequence of images to form a composite image. Bender does not expressly disclose evaluating sharpness on a pixel-by-pixel basis. Bender teaches evaluating the sharpness of portions of images taken at two different focal lengths. Official Notice is taken that it is well known in the art to analyze individual pixels or groups of pixels. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bender's teachings by evaluating sharpness on a pixel-by-pixel basis as an obvious variation to evaluating the sharpness of portions of images.

Conclusion

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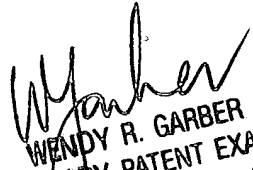
1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ishida et al teach a method of generating high resolution composite images. Rosenqvist et al teach a method for composing color images. Iko et al teach a method of adjusting distances between a subject and the camera. Kimura et al teach a method for composing an image of the foreground and background of a scene. Fujimaki teaches a camera with variable focal lengths.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rashawn N Tillery whose telephone number is 703-305-0627. The examiner can normally be reached on 9AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RNT


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